

DESCRIPTION:

Work consists of installation and maintenance of temporary bypass piping and service connections with pressure regulator valves as shown on the plans and as directed by Resident Engineer.

DEFINITIONS:

Consumer: Person, business or corporation who receives water service (domestic, fire or wholesale) from Monroe County Water Authority.

Curb stop: A valve located on a service line, usually at property line, separating company service from consumer's service, and used to shut consumer's service off.

Tap card: A record containing information about a service. Typical information usually includes service and main size, depths, and curb box location.

Temporary bypass
pipe burial: Burying at road crossings includes all crossings of roads, streets, drives and public roadways as shown on the Contract Drawings.

Burying at driveways crossings includes all special bypass installations, crossings of driveways for businesses, public roadways not shown on Contract Drawings, and as directed by Resident Engineer.

SPECIAL BYPASS INSTALLATION REQUIREMENTS:

Install bypass on house-side of sidewalk when possible.

Provide a "Typical Public Sidewalk Crossing" ramp over bypass at every location it crosses a sidewalk. See "Typical Public Sidewalk Crossing" detail in Contract Drawings.

Install bypass in ditch whenever possible.

BYPASS ROAD CROSSINGS:

Excavate and bury bypass across roads, as shown on the Contract Drawings. Payment shall be included in appropriate Temporary Bypass Pipe Item in the BID.

REFERENCES:

ANSI/AWWA B300 - Sodium Hypochlorite.

ANSI/AWWA B301 - Standard for Liquid Chlorine.

ANSI/AWWA C651 - Standards for Disinfecting Water Mains

MATERIALS:**Bypass Pipe:**

Pipe: Plastic or steel.

Pressure: Watertight and pressure rated for 1,380 kPa (200 psi) operating pressure.

Previous Use: Only for potable water in previous applications.

Bypass Pipe Couplings:

Type: Victaulic.

Pressure: Watertight and pressure rated for 1,380 kPa (200 psi) operating pressure.

Hoses and Hose Fittings:

Material: Inert material that will not impart a taste into the water

Pressure: Watertight and pressure rated for 1,380 kPa (200 psi) operating pressure.

Temporary Bypass Asphalt:

High Performance Asphalt Material composed of laboratory approved aggregates and plant mixed with QPR 2000 liquid asphalt blend from U.S. Pro-Tech, Inc. or approved equal.

a. Crushed limestone aggregate or approved equal with the following gradations:

Sieve Size Designation	Percent Passing By Weight
3/8 inch	90 - 100
No. 4	20 - 55
No. 8	5 - 30
No. 16	0 - 10
No. 50	0 - 5

b. Mixing ratio: 5.5 percent asphalt blend or (45 kg) 110 pounds per finished ton (2000

lbs.) of high performance asphalt material.

Disinfection Chemicals:

ANSI/AWWA B300 – Sodium Hypochlorite.

Dechlorination Chemicals:

Sodium Thiosulfate or approved equal.

CONSTRUCTION DETAILS:**Preparation:**

Obtain Distribution Plate maps and water service tap cards from MCWA's Project Representative and determine location of mainline valves, hydrants, consumer curb stops and fire service line valves.

Determine location and method of connection to bypass.

String bypass along street to be serviced.

Excavate where necessary for connections to existing mains or services or where necessary for burying the bypass.

Normal operating pressures on the area mains are approximately 621 kPa (90 Psi).

Installation:

Install 51 mm (2 inch), 102 mm (4 inch) and 152 mm (6 inch) bypass as shown on Contract Drawings or as directed by the Resident Engineer. Changes in layout may be made with prior approval of Resident Engineer. Secure bypass with suitable anchoring devices as needed.

Excavate and bury bypass pipe at road crossings. Bury bypass pipe for full width of pavement. Maintain cuts with temporary bypass asphalt.

Install valves on bypass pipe at both ends of each road crossing.

Excavate and bury bypass pipe at driveway crossings for Special Bypass Installations as shown on Contract Drawings or as ordered by Resident Engineer. Maintain cuts with temporary bypass asphalt.

Ramp and maintain bypass pipe at sidewalk crossings as shown on applicable detail in the Contract Drawings.

Ramp and maintain bypass pipe at residential driveway crossings with compacted temporary bypass asphalt free of potholes, bumps, irregularities, and depressions. Rigid bypass pipe must be used at driveway crossings (whips will not be allowed for driveway crossings).

Temporary fire hydrants:

Install temporary hydrants as shown on Contract Drawings or as ordered by Resident Engineer. The maximum spacing for temporary hydrants is every 151 m (500 feet).

Temporary fire hydrants shall have 114 mm (4½-inch) NST (National Standard Threads) nozzles. Maintain caps on temporary hydrants.

Install additional mainline bypass valves with a maximum of ten (10) houses or not more than 305 m (1,000 feet) between each valve and as shown on Contract Drawings.

Connections to existing water mains:

Make connections to existing water mains as shown on Contract Drawings.

Connections to existing hydrants.

1. Flush hydrant until clear water is observed.
2. Chlorinate hydrant barrel with a concentrated chlorine solution containing not less than 200 PPM (mg/l) of free chlorine. Chlorine solution shall remain in the hydrant barrel for a minimum period of one hour.
3. Remove hydrant main valve assembly and plug weep holes on all hydrants during use for temporary bypass connections.
4. Install a NST, double-valved tee directly on 114 mm (4½ inch) hydrant nozzle. One branch of tee shall be used for temporary bypass connection, and other shall be left without bypass attachments for fire department use.
5. Support appurtenances attached to hydrant.
6. Contractor must supply and install a combination backflow preventer and reduced pressure zone (RPZ) device at all water supply connections. The device must be of the same size as the greatest bypass pipe nominal diameter.

The device must be approved by the Resident Engineer and MCWA's Project Representative.

Contact the Monroe County Water Authority for the installation of a backflow preventer device and meter on all hydrants used for purposes other than supplying the bypass pipe. The cost for obtaining and setting the backflow preventer will be solely the Contractor's expense. Contact the Monroe County Water Authority at (716) 442-2001, extension 273 for information on costs and scheduling of backflow preventer installations. The Contractor will be billed for water used for purposes other than to supply the bypass pipe.

The Contractor will not be allowed to use water from the temporary bypass pipes for any other purpose other than to supply the bypass pipes. Water for filling water tanks, watering lawns, or any other purpose other than supplying water to bypass pipes must be obtained from a hydrant with a Monroe County Water Authority approved backflow preventer, as noted above.

Thoroughly flush bypass pipe, and chlorinate and health sample in the same manner as specified in the Ductile Iron Pipe Item (660.06XXXXM).

Supply and install "Out of Service" markers on all permanent hydrants while they are out of service, for the duration of work. Maintain temporary bypass hydrants and "Out of Service" signs on the permanent hydrants until the relocated main is in service, and all permanent hydrants are completely installed.

Interruption of Service:

Do not shut down or interrupt flow through any Authority facility unless specifically permitted to do so, in writing, by the Monroe County Water Authority.

Do not operate any existing facility, including main line valves, controlling flow. Assist Monroe County Water Authority in closing all valves necessary for interruption or shutdown of flow.

When an interruption of service occurs, work continuously and with expedience until completion of all work necessary to restore service to its normal state.

Emergency Shutdowns and Notifications:

In the event of a rupture of a water main, service, bypass pipe, temporary service or other failure of a Monroe County Water Authority facility, whether the result of Contractor's activities or other unrelated matters, act in accordance with the provisions of this Specification.

1. Immediately notify Monroe County Water Authority's Dispatch Office, (585) 442-2009, and inform them of the situation, affected area, proposed duration,

and the need for an immediate water main shutdown.

2. Call the Monroe County Water Authority Service Man for the area, inform him of the situation and request a water main turn off. The Contractor is Not to operate any valve to turn the water main off, unless authorized by MCWA's Service Man or Monroe County Water Authority's Project Representative.
3. Notify all affected residents.

Planned Shutdowns and Notifications:

Notify Monroe County Water Authority's Project Representative and the Resident Engineer in writing of proposed shutdown of any Monroe County Water Authority facility, and approximate duration thereof, a minimum of three (3) days in advance. Include date, time and extent of duration of shutdown in the written notification.

Notify all consumers, in writing, twenty-four (24) hours prior to shutdown with the notification form provided by Monroe County Water Authority. Completely fill out notification form and distribute it to all affected consumers prior to shutdown.

Immediately prior to individual service work, notify the consumer again to verify that all water use has been stopped.

Bear all responsibility for any loss or damage arising out of the failure of any such customer to receive notice of proposed shutdown or interruption of service.

Identify material, size, location of service, location outside hose bib and location of the curb box prior to making shutdown. Do not shut down or cause any interruption of flow until all labor, material and equipment necessary to perform the work are present at the work site.

Restore service as soon as possible. Immediately notify Monroe County Water Authority's Project Representative of said restoration of service.

Transfer of consumer services:

Transfer services to bypass pipe after Monroe County Water Authority receives written notice of an approved health sample.

Transfer all structures served by the main being removed from service to the bypass pipe. After transferring all customers to the bypass, shut down and de-water the water main to be relocated, by a method other than cutting the main, for a period of 24 hours in order to ensure that no customers will be without water service.

Connect consumer services, that are 38 mm (1½ inch) and smaller, to bypass using a hose connected to an outside hose bib.

Under no circumstances shall a domestic consumer's meter be removed.

Use a double-valved "Y" connector to connect temporary hose to consumer's hose bib.

When a hose bib connection is not possible, an alternate manner of connection shall be reviewed and approved by the Resident Engineer and Monroe County Water Authority.

Connect larger services by tapping the service line and connecting it to the bypass or in a manner acceptable to the Resident Engineer and Monroe County Water Authority.

Thoroughly flush hoses to be used for temporary services with potable water immediately prior to connection to consumer's service. Notify consumer prior to shutting off the service in the same manner as specified in the Ductile Iron Pipe Item (660.06XXXXM), and Transfer services to the bypass. Do not transfer services to bypass earlier than necessary to allow the Work to progress without delay.

All existing water main valves are to be operated by the Monroe County Water Authority. Schedule shutdowns forty-eight (48) hours in advance with Monroe County Water Authority's Project Representative.

Maintain barricades with flashers at all road crossings at the point where the bypass is no longer buried. Bury bypass up to pavement's edge as a minimum.

Maintain bypass and services at all times. Designate a permanent company employee to maintain the bypass and services. Contractor to supply Monroe County Water Authority with applicable emergency and after hours phone numbers. All bypass breaks and problems reported to Monroe County Water Authority's Dispatch Office shall result in a callout of the employee designated for maintenance.

Any work that Monroe County Water Authority performs to repair deficient bypass pipe, temporary services or any work pertaining to the bypass pipe, resulting from non-response from the Contractor, will be charged to the Contractor. This may also include the time for any and all Monroe County Water Authority personnel used to investigate the problem.

Use minimum 19 mm ($\frac{3}{4}$ inch) diameter hoses for all services 38 mm ($1\frac{1}{2}$ inch) diameter and smaller. Use hoses or piping that is hydraulically equivalent to the service size for all services 51 mm (2 inch) in diameter and larger.

Connect services to the relocated water main upon completion of the water main installation work and after Monroe County Water Authority receives written approval of an acceptable health sample from Monroe County Health Department.

Remove bypass and all materials used for driveway ramps. Complete restoration of all areas damaged by temporary bypass pipe and service connections.

METHOD OF MEASUREMENT:

Temporary Bypass Water Pipe - Quantity to be measured for payment shall be the number of linear meters of temporary bypass water pipe installed, as measured along the centerline of the pipe, beginning with the connection to the water source and extending to the dead end or end water source connection constituting the end of this particular line of pipe. Branch bypass lines will be as measured from the centerline of the pipe which the branch joins, along the centerline of the branch, to the face of the end of pipe constituting the end of that line.

Temporary Service Connections – Quantity to be measured for payment shall be the per connection number of individual temporary service connections installed from the temporary bypass pipe to the consumer's tie-in point, hose bib or other.

Temporary Bypass Water Pipe Burial – Quantity to be measured for payment shall be the number of linear meters of temporary bypass water pipe buried in pavement, or as directed by the Resident Engineer, as measured along the centerline of the pipe, beginning with the edge of burial and commencing at the opposite edge of burial constituting the end of this particular line of burial.

BASIS OF PAYMENT:

Temporary Bypass Water Pipe - Unit price bid shall include the cost of notifications; furnishing, installing, maintaining and removing all pipe; pipe fittings; hardware; water supply connection backflow preventers and reduced pressure zone devices; testing; temporary hydrants; mainline valves; cost of backflow devices from the Monroe County Water Authority; connections to existing water mains; joint materials; making pipe joints; flushing; sampling taps; chlorinating; scheduling and assisting with obtaining health samples; health sample costs; ramping at sidewalks and driveways; preparation and distribution of service interruption notices; maintaining bypass pipe, road crossings and service connections throughout duration of project; and furnishing all labor, material and equipment necessary to complete work.

The cost of temporary service connections and bypass burials will be paid for under separate items.

Asphalt restoration, lawn restoration, excavation for connections to existing water mains will be paid for under separate items.

A partial payment of only 50 percent of the unit price bid will be made for installed bypass pipe that has not been tested, or has not satisfactorily passed health tests.

Temporary Service Connections – Unit price bid shall include the cost of notifications; furnishing, installing, maintaining and removing all 20 mm (3/4 inch) minimum hose; pipe and pipe fittings for connections 51 mm (2 inch) and greater; hardware; individual

service pressure regulator valves (when connected to full pressure mains or bypass); double-valved “Y” connectors; joint materials; flushing; and furnishing all labor, material and equipment necessary to complete work.

The cost of bypass pipe and bypass burials will be paid for under separate items.

Temporary Bypass Water Pipe Burial – Unit price bid shall include the cost of saw cuts; excavation; temporary backfill and asphalt; maintaining temporary asphalt; removal of temporary asphalt and backfill; and furnishing all labor, material and equipment necessary to complete work and crossings of public roads and driveways for businesses.

The cost of temporary service connections and bypass pipe will be paid for under separate items.

Permanent asphalt restoration and lawn restoration will be paid for under separate items.

Payment will be made under:

<u>Item No.</u>	<u>Item</u>	<u>Pay Unit</u>
660.51M	25 mm Minimum Temporary Service Connections for Individual Consumers (Including all hose and connection fittings)	Each
660.52M	51 mm Minimum Temporary Service Connections for Individual Consumers (Including all hose and connection fittings)	Each
660.53M	51 mm Water Main Bypass Pipe and Fittings (Including Hydrant Connections and Temporary Hydrants)	Meter
660.54M	102 mm Water Main Bypass Pipe and Fittings (Including Hydrant Connections and Temporary Hydrants)	Meter
660.55M	152 mm Water Main Bypass Pipe and Fittings (Including Hydrant Connections and Temporary Hydrants)	Meter
660.56M	Bypass Burial Requiring Asphalt Excavation (Including all Temporary Asphalt and Maintenance)	Meter